Java Tutorial: From Zero to Hero

Learn Java, the backbone of enterprise applications. Gain core skills and best practices. Build real-world projects confidently.

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Setting Up Your Development Environment

Install JDK

Download Oracle or OpenJDK. Set JAVA_HOME variable properly.

Choose IDE

- IntelliJ IDEA for powerful tools
- Eclipse as open-source option
- VS Code with Java extensions

Configure IDE

Customize settings for efficient Java development and debugging.

Java Basics: Syntax and Data Types

Core Syntax

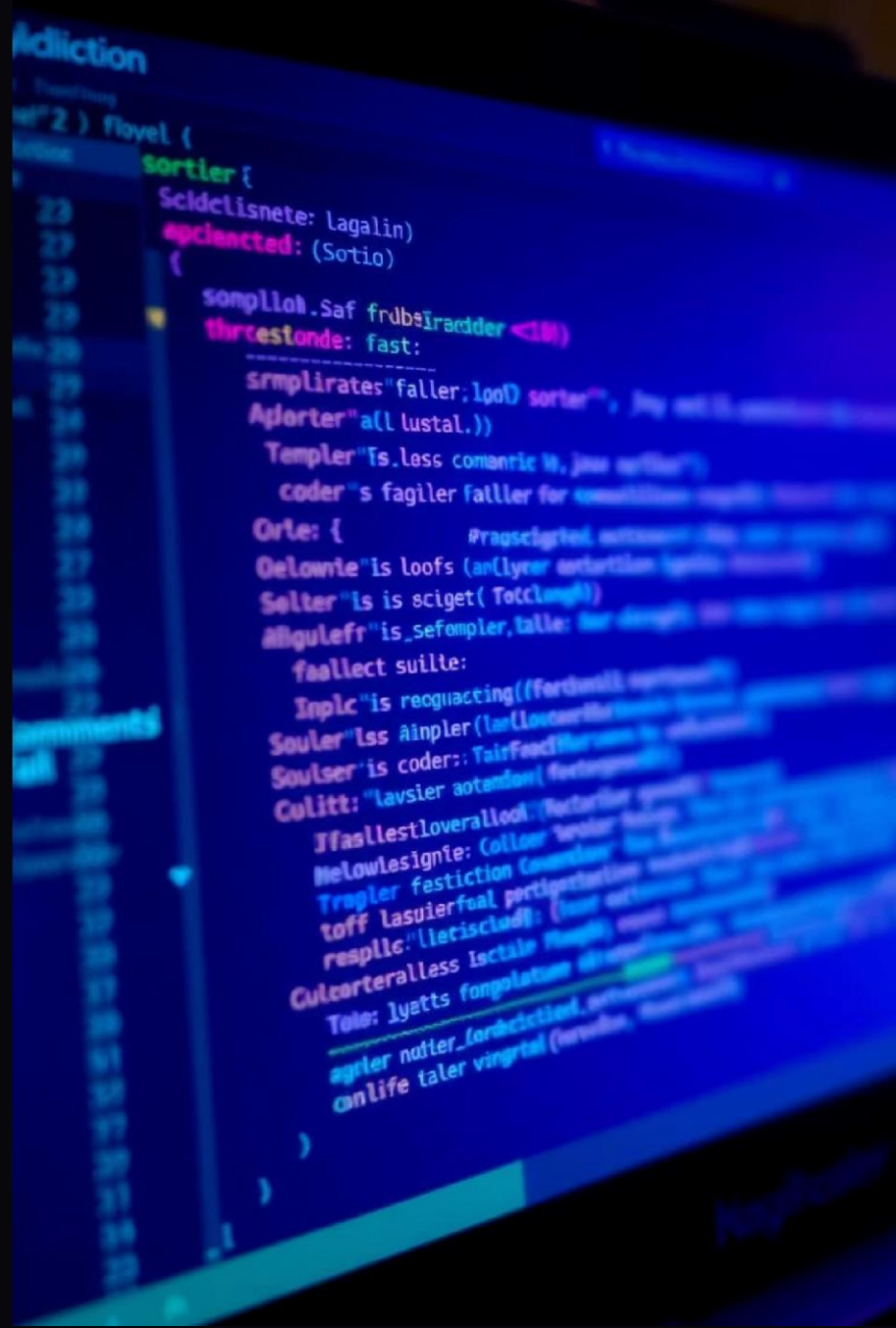
Classes, methods, statements form the program structure.

Data Types

Primitives like int, double, boolean; plus String objects.

Control Flow

If-else statements and loops guide the program logic.



Object-Oriented Programming (OOP)

Key Concepts

- Encapsulation
- Inheritance
- Polymorphism

Example

Create a Car class with fields and behaviors using access modifiers.

Working with Collections

List Types

Use ArrayList and LinkedList for ordered collections.

Sets and Maps

HashSet for unique elements, HashMap for key-value pairs.

Operations

Add, remove, check contents, and iterate collections easily.

Exception Handling

Basics

Use try-catch to handle runtime issues gracefully.

Common Exceptions

Handle IOException, NullPointerException, and others properly.

Advanced

Throw exceptions and use finally for cleanup actions.

Input/Output (I/O) Operations

1 File Access

Read and write data to files with streams and Scanner.

2 Object Serialization

Save and restore object states efficiently.

3 Practical Use

Example: Process data from CSV files programmatically.

Next Steps: Advanced Topics

1. **Concurrency**

   Learn multithreading for parallel tasks.

2. **Networking**

   Use sockets for communication over networks.

3. **Databases**

   Connect to databases with JDBC.

4. **GUIs and Frameworks**

   Build interfaces with Swing/JavaFX and explore Spring or Hibernate.